

RJ #6  
SO CO KAY  
9-16-02

PCT10

ENTERED

DATE: 07/17/2002  
TIME: 09:11:24RAW SEQUENCE LISTING  
PATENT APPLICATION: US/10/018,228AInput Set : A:\EP.txt  
Output Set: N:\CRF3\07172002\J018228A.raw

5 <110> APPLICANT: Lex M. Cowser  
 6 ISIS PHARMACEUTICALS, INC.  
 8 <120> TITLE OF INVENTION: ANTISENSE MODULATION OF G-ALPHA-S1 EXPRESSION  
 W--> 9 <130> FILE REFERENCE: RTSP-0061  
 C--> 11 <140> CURRENT APPLICATION NUMBER: US/10/018,228A  
 C--> 11 <141> CURRENT FILING DATE: 2002-06-03  
 11 <150> PRIOR APPLICATION NUMBER: 09/344,914  
 12 <151> PRIOR FILING DATE: 1999-06-25  
 14 <160> NUMBER OF SEQ ID NOS: 87  
 16 <210> SEQ ID NO: 1  
 17 <211> LENGTH: 1516  
 18 <212> TYPE: DNA  
 19 <213> ORGANISM: Homo sapiens  
 21 <220> FEATURE:  
 22 <221> NAME/KEY: CDS  
 23 <222> LOCATION: (13)...(1155)  
 25 <400> SEQUENCE: 1  
 26 gccggccgc cc atg ggc tgc ctc ggg aac agt aag acc gag gac cag 48  
 27 Met Gly Cys Leu Gly Asn Ser Lys Thr Glu Asp Gln  
 28 1 5 10  
 30 cgc aac gag gag aag gcg cag cgt gag gcc aac aad aag atc gag aag 96  
 31 Arg Asn Glu Glu Lys Ala Gln Arg Glu Ala Asn Lys Lys Ile Glu Lys  
 32 15 20 25  
 34 cag ctg cag aag gac aag cag gtc tac egg gcc acg cac cgc ctg 144  
 35 Glu Leu Gln Lys Asp Lys Gln Val Tyr Arg Ala Thr His Arg Leu Leu  
 36 30 35 40  
 38 ctg ctg ggt gct gga gaa tct ggt aaa agc acc att gtg aag cag atg 192  
 39 Leu Leu Gly Ala Gly Glu Ser Gly Lys Ser Thr Ile Val Lys Gln Met  
 40 45 50 55 60  
 42 agg atc ctg cat gtt aat ggg ttt aat gga gac agt gag aag gca acc 240  
 43 Arg Ile Leu His Val Asn Gly Phe Asn Gly Asp Ser Glu Lys Ala Thr  
 44 65 70 75  
 46 aac gtg cag gac atc aac aac ctg aaa gag gcg att gaa acc att 288  
 47 Lys Val Gln Asp Ile Lys Asn Asn Leu Lys Glu Ala Ile Glu Thr Ile  
 48 80 85 90  
 50 gtc gcc gcc atg agc aac ctg gtc ccc gtc gag ctg gcc aac ccc 336  
 51 Val Ala Ala Met Ser Asn Leu Val Pro Pro Val Glu Leu Ala Asn Pro  
 52 95 100 105  
 54 gag aac cag ttc aga gtc gac tac atc ctg agt gtc atg aac gtc cct 384  
 55 Glu Asn Gln Phe Arg Val Asp Tyr Ile Leu Ser Val Met Asn Val Pro  
 56 110 115 120  
 58 gac ttt gac ttc cct ccc gaa ttc tat gag cat gcc aag gct ctg tgg 432  
 59 Asp Phe Asp Phe Pro Pro Glu Phe Tyr Glu His Ala Lys Ala Leu Trp

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|     |   |     |     |     |      |
|-----|---|-----|-----|-----|------|
| 60  | 125   | 130 | 135 | 140 |      |
| 62  | gag gat gaa gga gtc cgt gcc tgc tac gac cgc tcc aac gag tac cag   |     |     |     | 480  |
| 63  | Glu Asp Glu Gly Val Arg Ala Cys Tyr Glu Arg Ser Asn Glu Tyr Gln   |     |     |     |      |
| 64  | 145   | 150 | 155 |     |      |
| 66  | ctg att gac tgt gcc cag tac ttc ctg gac aag atc gac gtc atc aag   |     |     |     | 528  |
| 67  | Leu Ile Asp Cys Ala Glu Tyr Phe Leu Asp Lys Ile Asp Val Ile Lys   |     |     |     |      |
| 68  | 160   | 165 | 170 |     |      |
| 70  | cag gct gac tat gtc ccg agc gat cag gac ctg ctt cgc tgc cgt gtc   |     |     |     | 576  |
| 71  | Gln Ala Asp Tyr Val Pro Ser Asp Gln Asp Leu Leu Arg Cys Arg Val   |     |     |     |      |
| 72  | 175   | 180 | 185 |     |      |
| 74  | ctg act tct gga atc ttt gag acc aag ttc cag gtc gac aaa gtc aac   |     |     |     | 624  |
| 75  | Leu Thr Ser Gly Ile Phe Glu Thr Lys Phe Gln Val Asp Lys Val Asn   |     |     |     |      |
| 76  | 190   | 195 | 200 |     |      |
| 78  | ttc cac atg ttt gag gtc ggt ggc cag cgc gat gaa cgc cgc aag tgg   |     |     |     | 672  |
| 79  | Phe His Met Phe Asp Val Gly Gly Gln Arg Asp Glu Arg Arg Lys Trp   |     |     |     |      |
| 80  | 205   | 210 | 215 |     | 220  |
| 82  | atc cag tgc ttc aac gat gtc act gcc atc atc ttc gtg gtg gcc agc   |     |     |     | 720  |
| 83  | Ile Gln Cys Phe Asn Asp Val Thr Ala Ile Ile Phe Val Val Ala Ser   |     |     |     |      |
| 84  | 225   | 230 | 235 |     |      |
| 86  | agc agc tac aac atg gtc atc cgg gag gac aac cag acc aac cgc ctg   |     |     |     | 768  |
| 87  | Ser Ser Tyr Asn Met Val Ile Arg Glu Asp Asn Gln Thr Asn Arg Leu   |     |     |     |      |
| 88  | 240   | 245 | 250 |     |      |
| 90  | cag gag gct ctg aac ctc ttc aag agc atc tgg aac aac aga tgg ctg   |     |     |     | 816  |
| 91  | Gln Glu Ala Leu Asn Leu Phe Lys Ser Ile Trp Asn Asn Arg Trp Leu   |     |     |     |      |
| 92  | 255   | 260 | 265 |     |      |
| 94  | cgc acc atc tct gtg atc ctg ttc ctc aac aag caa gat ctg ctc gct   |     |     |     | 864  |
| 95  | Arg Thr Ile Ser Val Ile Leu Phe Leu Asn Lys Gln Asp Leu Leu Ala   |     |     |     |      |
| 96  | 270   | 275 | 280 |     |      |
| 98  | gag aaa gtc ctt gct ggg aaa tcg aag att gag gac tac ttt cca gaa   |     |     |     | 912  |
| 99  | Glu Lys Val Leu Ala Gly Lys Ser Lys Ile Glu Asp Tyr Phe Pro Glu   |     |     |     |      |
| 100 | 285   | 290 | 295 | 300 |      |
| 102 | ttt gct cgc tac act act cct gag gat gtc act ccc gag ccc gga gag   |     |     |     | 960  |
| 103 | Phe Ala Arg Tyr Thr Pro Glu Asp Ala Thr Pro Glu Pro Gly Glu       |     |     |     |      |
| 104 | 305   | 310 | 315 |     |      |
| 106 | gac cca cgc gtg acc cgg gcc aag tac ttc att cga gat gag ttt ctg   |     |     |     | 1008 |
| 107 | Asp Pro Arg Val Thr Arg Ala Lys Tyr Phe Ile Arg Asp Glu Phe Leu   |     |     |     |      |
| 108 | 320   | 325 | 330 |     |      |
| 110 | agg atc agc act gcc agt gga gat ggg cgt cac tac tgc tac cct cat   |     |     |     | 1056 |
| 111 | Arg Ile Ser Thr Ala Ser Gly Asp Gly Arg His Tyr Cys Tyr Pro His   |     |     |     |      |
| 112 | 335   | 340 | 345 |     |      |
| 114 | tcc acc tgc gct gtg gac act gag aac atc cgc cgt gtg ttc aac gac   |     |     |     | 1104 |
| 115 | Phe Thr Cys Ala Val Asp Thr Glu Asn Ile Arg Arg Val Phe Asn Asp   |     |     |     |      |
| 116 | 350   | 355 | 360 |     |      |
| 118 | tgc cgt gac atc att cag cgc atg cac ctt cgt cag tac gag ctg ctc   |     |     |     | 1152 |
| 119 | Cys Arg Asp Ile Ile Gln Arg Met His Leu Arg Gln Tyr Glu Leu Leu   |     |     |     |      |
| 120 | 365   | 370 | 375 | 380 |      |
| 122 | taa gaaggaaacc cccaaattta attaaaagct taagcaaat taattaaaaag        |     |     |     | 1205 |
| 124 | tgaaacgtaa ttgtacaacg agttaatcac ccacatagg gcatgattaa caaaaccaacc |     |     |     | 1265 |
| 126 | tttccccccc cccgagtgat ttggcgaac cccctttcc cttcagottt cttagatgtt   |     |     |     | 1325 |

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|           |   |      |
|-----------|---|------|
| 128       | ccaaattttag aaagcttaa gccccatac gaaaaaggaa aaaaggccac aaaagtcccc  | 1385 |
| 130       | tctcatctt cgtaaaaata aataaaacag cagcagcaaa caaataaaat gaaataaaaag | 1445 |
| 132       | aaacaatga aataaaatatt gtgttgtca gcattaaaaaa aatcaaaaat aaaaataaaa | 1505 |
| 134       | tgtgagcaaa g  | 1516 |
| 136 <210> | SEQ ID NO: 2  |      |
| 137 <211> | LENGTH: 21  |      |
| 138 <212> | TYPE: DNA   |      |
| 139 <213> | ORGANISM: Artificial Sequence                                     |      |
| 141 <220> | FEATURE:  |      |
| 142 <223> | OTHER INFORMATION: PCR Primer                                     |      |
| 144 <400> | SEQUENCE: 2   |      |
| 145       | cagtggagat gggcgctact a   | 21   |
| 147 <210> | SEQ ID NO: 3  |      |
| 148 <211> | LENGTH: 21  |      |
| 149 <212> | TYPE: DNA   |      |
| 150 <213> | ORGANISM: Artificial Sequence                                     |      |
| 152 <220> | FEATURE:  |      |
| 153 <223> | OTHER INFORMATION: PCR Primer                                     |      |
| 155 <400> | SEQUENCE: 3   |      |
| 156       | atgtcacggg agtcgttgaa c   | 21   |
| 158 <210> | SEQ ID NO: 4  |      |
| 159 <211> | LENGTH: 25  |      |
| 160 <212> | TYPE: DNA   |      |
| 161 <213> | ORGANISM: Artificial Sequence                                     |      |
| 163 <220> | FEATURE:  |      |
| 164 <223> | OTHER INFORMATION: PCR Probe                                      |      |
| 166 <400> | SEQUENCE: 4   |      |
| 167       | tgctaccctt atttcacctg cgctg                                       | 25   |
| 169 <210> | SEQ ID NO: 5  |      |
| 170 <211> | LENGTH: 19  |      |
| 171 <212> | TYPE: DNA   |      |
| 172 <213> | ORGANISM: Artificial Sequence                                     |      |
| 174 <220> | FEATURE:  |      |
| 175 <223> | OTHER INFORMATION: PCR Primer                                     |      |
| 177 <400> | SEQUENCE: 5   |      |
| 178       | gaaggtaaag gtcggagtc  | 19   |
| 180 <210> | SEQ ID NO: 6  |      |
| 181 <211> | LENGTH: 20  |      |
| 182 <212> | TYPE: DNA   |      |
| 183 <213> | ORGANISM: Artificial Sequence                                     |      |
| 185 <220> | FEATURE:  |      |
| 186 <223> | OTHER INFORMATION: PCR Primer                                     |      |
| 188 <400> | SEQUENCE: 6   |      |
| 189       | gaagatgtgt atggatttc  | 20   |
| 191 <210> | SEQ ID NO: 7  |      |
| 192 <211> | LENGTH: 20  |      |
| 193 <212> | TYPE: DNA   |      |
| 194 <213> | ORGANISM: Artificial Sequence                                     |      |
| 196 <220> | FEATURE:  |      |

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197 <223> OTHER INFORMATION: PCR Probe  
199 <400> SEQUENCE: 7  
200 caaggcttccc gtttcagcc 20  
202 <210> SEQ ID NO: 8  
203 <211> LENGTH: 20  
204 <212> TYPE: DNA  
205 <213> ORGANISM: Artificial Sequence  
207 <220> FEATURE:  
208 <223> OTHER INFORMATION: Antisense Oligonucleotide  
210 <400> SEQUENCE: 8  
211 tgcctttca ctgtctccat 20  
213 <210> SEQ ID NO: 9  
214 <211> LENGTH: 20  
215 <212> TYPE: DNA  
216 <213> ORGANISM: Artificial Sequence  
218 <220> FEATURE:  
219 <223> OTHER INFORMATION: Antisense Oligonucleotide  
221 <400> SEQUENCE: 9  
222 ttgccttctc actgtctcca 20  
225 <210> SEQ ID NO: 10  
226 <211> LENGTH: 20  
227 <212> TYPE: DNA  
228 <213> ORGANISM: Artificial Sequence  
230 <220> FEATURE:  
231 <223> OTHER INFORMATION: Antisense Oligonucleotide  
233 <400> SEQUENCE: 10  
234 gttgccttc cactgtctcc 20  
236 <210> SEQ ID NO: 11  
237 <211> LENGTH: 20  
238 <212> TYPE: DNA  
239 <213> ORGANISM: Artificial Sequence  
241 <220> FEATURE:  
242 <223> OTHER INFORMATION: Antisense Oligonucleotide  
244 <400> SEQUENCE: 11  
245 ggttgccttc tcactgtctc 20  
247 <210> SEQ ID NO: 12  
248 <211> LENGTH: 20  
249 <212> TYPE: DNA  
250 <213> ORGANISM: Artificial Sequence  
252 <220> FEATURE:  
253 <223> OTHER INFORMATION: Antisense Oligonucleotide  
255 <400> SEQUENCE: 12  
256 tggttgccctt ctactgtct 20  
258 <210> SEQ ID NO: 13  
259 <211> LENGTH: 20  
260 <212> TYPE: DNA  
261 <213> ORGANISM: Artificial Sequence  
263 <220> FEATURE:  
264 <223> OTHER INFORMATION: Antisense Oligonucleotide

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|  |    |
|--|----|
| 266 <400> SEQUENCE: 13                                 | 20 |
| 267    ctttgttgc ttctca                                |    |
| 269 <210> SEQ ID NO: 14                                |    |
| 270 <211> LENGTH: 20                                   |    |
| 271 <212> TYPE: DNA                                    |    |
| 272 <213> ORGANISM: Artificial Sequence                |    |
| 274 <220> FEATURE:                                     |    |
| 275 <223> OTHER INFORMATION: Antisense Oligonucleotide |    |
| 277 <400> SEQUENCE: 14                                 | 20 |
| 278    gtgaatatgg ggttagcgt                            |    |
| 280 <210> SEQ ID NO: 15                                |    |
| 281 <211> LENGTH: 20                                   |    |
| 282 <212> TYPE: DNA                                    |    |
| 283 <213> ORGANISM: Artificial Sequence                |    |
| 285 <220> FEATURE:                                     |    |
| 286 <223> OTHER INFORMATION: Antisense Oligonucleotide |    |
| 288 <400> SEQUENCE: 15                                 | 20 |
| 289    aggtgaaatgg aggtagcag                           |    |
| 291 <210> SEQ ID NO: 16                                |    |
| 292 <211> LENGTH: 20                                   |    |
| 293 <212> TYPE: DNA                                    |    |
| 294 <213> ORGANISM: Artificial Sequence                |    |
| 296 <220> FEATURE:                                     |    |
| 297 <223> OTHER INFORMATION: Antisense Oligonucleotide |    |
| 299 <400> SEQUENCE: 16                                 | 20 |
| 300    caggtaatgg gggtagca                             |    |
| 302 <210> SEQ ID NO: 17                                |    |
| 303 <211> LENGTH: 20                                   |    |
| 304 <212> TYPE: DNA                                    |    |
| 305 <213> ORGANISM: Artificial Sequence                |    |
| 307 <220> FEATURE:                                     |    |
| 308 <223> OTHER INFORMATION: Antisense Oligonucleotide |    |
| 310 <400> SEQUENCE: 17                                 | 20 |
| 311    gcaggtaaaa tgagggtac                            |    |
| 313 <210> SEQ ID NO: 18                                |    |
| 314 <211> LENGTH: 20                                   |    |
| 315 <212> TYPE: DNA                                    |    |
| 316 <213> ORGANISM: Artificial Sequence                |    |
| 318 <220> FEATURE:                                     |    |
| 319 <223> OTHER INFORMATION: Antisense Oligonucleotide |    |
| 321 <400> SEQUENCE: 18                                 | 20 |
| 322    cgcaggtaa atgagggtag                            |    |
| 324 <210> SEQ ID NO: 19                                |    |
| 325 <211> LENGTH: 20                                   |    |
| 326 <212> TYPE: DNA                                    |    |
| 327 <213> ORGANISM: Artificial Sequence                |    |
| 329 <220> FEATURE:                                     |    |
| 330 <223> OTHER INFORMATION: Antisense Oligonucleotide |    |
| 332 <400> SEQUENCE: 19                                 |    |

**VERIFICATION SUMMARY**

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L:9 M:283 W: Missing Blank Line separator, <130> field identifier

L:11 M:270 C: Current Application Number differs, Replaced Current Application No

L:11 M:271 C: Current Filing Date differs, Replaced Current Filing Date